REMARKS

Reconsideration and allowance of the present application are respectfully requested. Claims 1, 3-7, 13-15 and 17-19 1-17 are pending in the application.

CLAIM REJECTIONS UNDER 35 U.S.C. § 112

In numbered paragraph 2 of the Office Action, claims 3 and 7 are rejected under 35 U.S.C. § 112, first paragraph. The Office Action alleges that the recitation of a surface relief holographic grating formed directly in a molding operation (claim 3) and a surface that includes a surface relief holographic grating molded from the moldable IR transmissive material (claim 7) are not supported by the specification. Claims 3 and 7 have been amended to recite that the surface with a kinoform superimposed on the aspheric surface is formed directly in a molding operation (claim 3) and that the surface includes a kinoform superimposed on an aspheric surface which is molded from the moldable IR transmissive material (claim 7). Thus, Applicants respectfully assert that the claims 3 and 7 as amended comply with 35 U.S.C. § 112, first paragraph, and respectfully request withdrawal of this rejection. These features are described, for example, in at least the following portions of the disclosure: the specification, paragraph [0015].

OBJECTION TO THE CLAIMS

In the Office Action, at numbered paragraph 3, Claims 1, 3-6, 7, 13-15, and 17-19 were objected to for using the abbreviation "IR". By way of the foregoing amendments,

Applicants have amended Claims 1, 7, and 15 to replace "IR" with "infrared". Accordingly, Applicants respectfully request withdrawal of the objections.

CLAIM REJECTIONS UNDER 35 U.S.C. §102

Claims 3 and 13-17 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 6,018,414 to Chipper (hereafter "*Chipper*") on the grounds set forth in paragraph 6 of the Official Action. For at least the reasons noted below, this rejection should be withdrawn.

The present invention is directed to providing an infrared lens made from moldable infrared transmissive material. In exemplary embodiments, the IR lens has at least one surface with an optically significant surface. Examples of an optically significant surface include an aspheric with a surface relief holographic grating (kinoform) for a desired constructive wavelength. See, for example, paragraph [0014]. The application provides a mathematical equation defining an aspherical surface with a kinoform in paragraph [0015]. Prescriptions of exemplary embodiments of an IR lens made from a moldable IR transmissive material and having an aspherical surface with a kinoform are presented in Table 3.

The foregoing features are broadly encompassed by the independent claims. Independent claim 1 is directed to an infrared (IR) lens comprising a first surface and a second surface. The IR lens is a moldable IR transmissive material and one of the first surface and the second surface includes a kinoform superimposed on an aspheric surface. Independent claim 7 recites that an infrared (IR) lens has a first surface and a second

surface and one of the first surface and the second surface includes a kinoform superimposed on an aspheric surface. The one first surface or second surface is molded from the moldable IR transmissive material. Claim 13 is directed to an infrared (IR) lens comprising a first aspherical surface and a second surface. The first aspherical surface is superimposed with a kinoform. The lens is made from a moldable IR transmissive material. Independent claim 15 is directed to an infrared imaging optical arrangement and recites that the arrangement comprises a first lens and a second lens. At least the first lens is made from a moldable infrared (IR) transmissive material. At least the first lens has a kinoform superimposed on an aspheric surface on one of a first surface or second surface.

In contrast to Applicants' independent claims, *Chipper* does not disclose, teach or suggest an infrared lens or an infrared imaging optical arrangement where a kinoform is superimposed on an aspheric surface. *Chipper* is concerned with a lens system with multiple lens elements. Within the lens system, *Chipper* makes a distinction between a first group of lens elements, 32, 34, 36, 38, and 40, that can be formed so as to include an aspheric surface, and a second group of diffractive lens, 42 and 44, that include a kinoform. The Examiner has noted that *Chipper* states "additionally, although the diffractive surfaces are formed as separate lens in zoom lens assembly 16, it will be understood by those skilled in the art that the diffractive surface can be formed on a second side of a lens element." See column 9, lines 40-43. However, the statement in *Chipper* does not disclose an infrared lens wherein one of a first surface and a second surface includes a kinoform superimposed on an aspheric surface. Rather, the disclosure in *Chipper* at best suggests providing an aspheric surface on a first side of a lens element and

a kinoform on a second side of a lens element. Therefore, Applicants respectfully assert that there is no teaching or suggestion in *Chipper* that anticipates Applicants' independent claims.

Further, the optical equation disclosed in *Chipper* at column 8 is quite different from Applicants' equation 1 of an aspheric surface with a kinoform. *Chipper* characterizes his optical equation as a "general equation for a diffractive surface." In contrast, Applicants' equation 1 mathematically defines an aspherical surface with a kinoform. As can be seen, the equation in *Chipper* and Applicants' equation 1 are quite different. Accordingly, *Chipper* does not disclose or suggest Applicants' infrared lens and infrared imaging optical arrangement.

Based on the above remarks, Applicants respectfully request withdrawal of the rejection.

CLAIM REJECTIONS UNDER 35 U.S.C. §103

Claims 5, 18 and 19 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Chipper in view of U.S. Patent No. 4,154,503 to Lettington et al. (hereafter "*Lettington et al.*") on the grounds set forth in paragraph 6 of the Official Action. This rejection is respectfully traversed.

Lettington et al. is relied upon in the Official Action for teaching that a moldable IR transmissive material is an arsenic selenide glass. However, neither *Chipper* nor *Lettington et al.*, alone or in combination, teach, suggest or provide motivation for a kinoform superimposed on an aspheric surface of an infrared lens, or an infrared imaging optical

arrangement with a first lens having a kinoform superimposed on an aspheric surface. Thus, the combination of *Chipper* and *Lettington et al.*, as relied upon by the Examiner, would not have resulted in Applicants' presently claimed invention. Accordingly, withdrawal of the rejection of claims 5, 18 and 19 is respectfully requested.

CONCLUSION

A Notice of Allowance is earnestly solicited. Should the Examiner feel that any issues remain, it is requested that the undersigned be contacted so that any such issues may be adequately addressed and prosecution of the instant application expedited.

Respectfully submitted,

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Attachment to Amendment dated January 29, 2003

Marked-up Claims 1, 3, 7, 13 and 15

1. (Twice Amended) An infrared (IR) [IR] lens comprising:

a first surface; and

a second surface,

wherein the IR lens is a moldable IR transmissive material and one of the first surface and the second surface [at least one surface] includes a [surface relief holographic grating] kinoform superimposed on an aspheric surface.

3. (Twice Amended) The IR lens of claim 1, wherein the one surface [relief holographic grating] with the kinoform superimposed on the aspheric surface is formed directly in a molding operation.

7. (Twice Amended) An infrared (IR) [IR] lens comprising:

a first surface; and

a second surface,

wherein the IR lens is made from a moldable IR transmissive material and wherein [at least the second surface] one of the first surface and the second surface includes a [surface relief holographic grating] kinoform superimposed on an aspheric surface, the one first surface or second surface molded from the moldable IR transmissive material.

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